I claim:

1. A method comprising the steps of:

forming a multilayered structure having at least a top layer, a middle layer and a bottom layer adjacent to each other, where said middle layer has a thickness, d;

defining at least a first hole in said top layer and through said middle layer;

defining at least a second hole in said bottom layer and through said middle layer, said first and second holes being offset from one another; and

defining a channel between said first and second holes in said middle layer so that only objects having a size of d or smaller may traverse said multilayered structure through said first and second holes and said channel.

2. The method of claim 1 where the step of forming a multilayered structure forms a top and bottom layer composed of material different from that composing said middle layer so that a selective etchant of said middle layer is used to define said channel.

3. The method of claim 1 where the step of forming a multilayered structure forms a middle layer with a thickness, d, in the range of 1 – 5nm.

4. The method of claim 1 where the step of defining at least a first hole in said top layer and defining at least a second hole in said bottom layer defines a plurality of offset holes in said top and bottom layer.

5. The method of claim 1 further comprising the steps of disposing a conductive layer on said top and bottom layers and applying a signal to said conductive layer on said top and bottom layers to trap charged organic molecules traversing said structure, to vary filtration realized through said channel by means of channel restriction, or to provide valving.

6. The method of claim 5 where said signal is a radiofrequency signal characterized by at least one frequency and further comprising varying said at least one frequency of said signal to selectively match specific organic molecules traversing said structure.

7. The method of claim 5 where said signal is a DC signal characterized by a magnitude and further comprising varying said magnitude to correspondingly vary the size of said channel and filtration provided thereby.

8. The method of claim 5 where said signal is a DC signal characterized by a magnitude and further comprising varying said magnitude to open or close said channel.

9. The method of claim 5 where defining at least said first and second hole simultaneously defines said first and second hole through said conductive layer on said top and bottom layers.

10. The method of claim 9 where defining at least said first and second hole comprises using electron beam lithography to delineate said first and second hole and further comprising imaging one of said top and bottom layers while lithographically delineating said other one of said top and bottom layers.

11. An apparatus comprising:

a multilayered structure having at least a top layer, a middle layer and a bottom layer adjacent to each other, where said middle layer has a thickness, d;

at least a first hole in said top layer and through said middle layer;

at least a second hole in said bottom layer and through said middle layer, said first and second holes being offset from one another; and

a channel between said first and second holes in said middle layer so that only objects having a size of d or smaller may traverse said multilayered structure through said first and second holes and said channel.

12. The apparatus of claim 11 wherein said top and bottom layer are composed of material different from that composing said middle layer so that a selective etchant of said middle layer is used to define said channel.

13. The apparatus of claim 11 where said multilayered structure forms a middle layer with a thickness, d, in the range of 1 – 5nm.

14. The apparatus of claim 11 further comprising a plurality of offset holes in said top and bottom layer.

15. The apparatus of claim 11 further comprising a conductive layer on said top and bottom layers for the application of a signal to said conductive layer on said top and bottom layers to trap charged organic molecules traversing said structure, to vary filtration realized through said channel by means of channel restriction, or to provide valving through said channel.

16. The apparatus of claim 15 further comprising a source of a variable radiofrequency signal to selectively match specific organic molecules traversing said structure.

17. The apparatus of claim 15 further comprising a source of a variable DC signal to vary filtration realized through said channel by means of channel restriction, or to provide valving through said channel.

18. The apparatus of claim 15 where said first and second hole are simultaneously defined through said conductive layer on said top and bottom layers.

19. The apparatus of claim 18 where said first and second hole are delineated using electron beam lithography and wherein one of said top and bottom layers can be imaged while said other one of said top and bottom layers is lithographically delineated.

20. A nano-scale filter comprising:

a top layer;

a middle layer disposed adjacent to said top layer, where said middle layer has a thickness, d;

a bottom layer disposed adjacent to said middle layer;

a first plurality of holes defined in said top layer and through said middle layer;

a second plurality of holes defined in said bottom layer and through said middle layer, said first and second plurality of holes being offset from one another; and

at least one nano-scale channel between said first and second plurality of holes in said middle layer so that only objects having a size of d or smaller may traverse said filter through said first and second plurality of holes and said channel.

21. The filter of claim 20 further comprising a corresponding plurality of nano-scale channels, one of said plurality of nano-scale channels communicating one of said first plurality of holes to one of said second plurality of holes.

22. The apparatus of claim 20 further comprising a first conductive layer disposed on said top layer and a second conductive layer on said bottom layer, so that a signal

applied across said first and second conductive layers serves to selectively filter molecules or particles.

23. The apparatus of claim 20 wherein said channel has a width of d or less.

24. The apparatus of claim 23 wherein d is in the range of 1 to 5 nm.